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THE RELATIONSHIP OF OUTCOME VALENCE, PERSONAL GOAL AND COMMITME--ETC(U)
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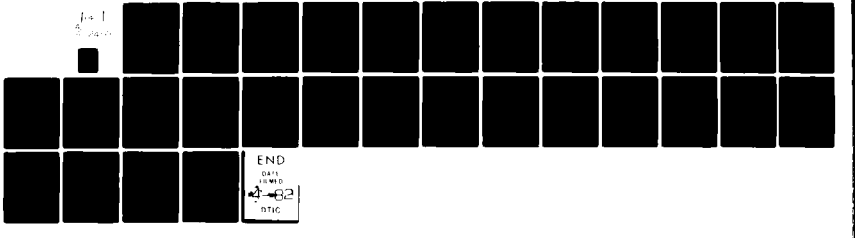

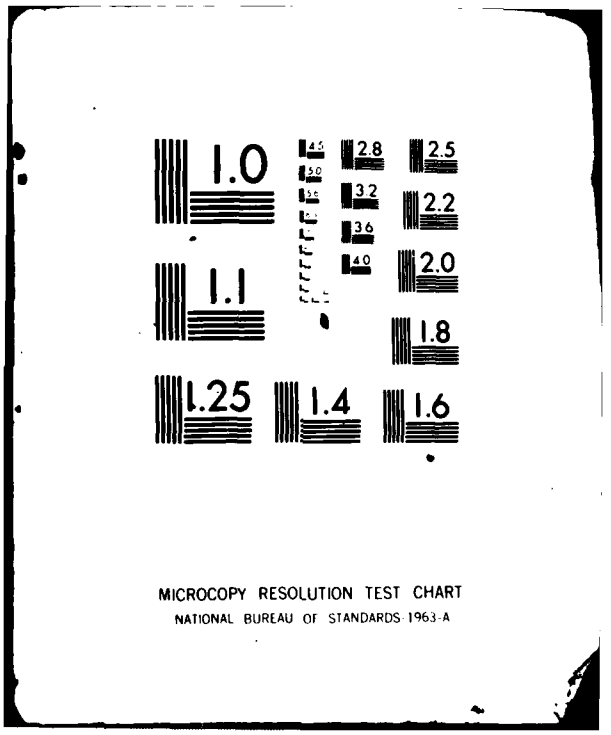
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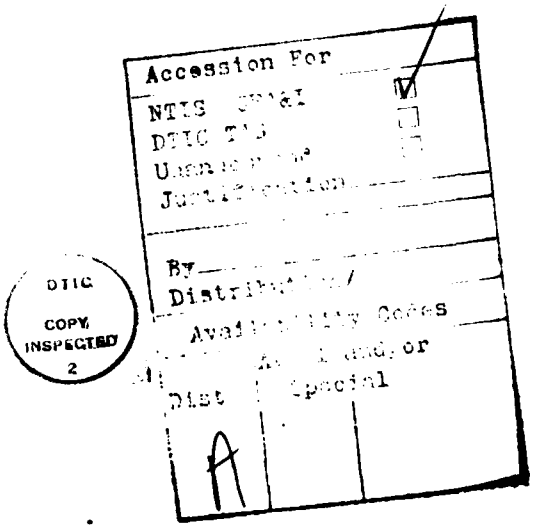

The Relationship of Outcome Valence, Personal Goal and Commitment to Performance When No Goals Are Assigned[1]

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The Relationship of Outcome Valence, Personal Goal and Commitment to Performance When No Goals Are Assigned

Abstract

A 3x3 factorial design examined the effects of three degrees of feedback/feedforward (given before task performance) and three levels of objective probability of success on task performance. Subjective expectancy, personal goal, valence of winning, and commitment to winning were also measured. The experimental manipulations had no effect on performance, indicating once again the extreme fragility of Atkinson's (1958) widely cited finding of a curvelinear relationship between probability of success and performance. Personal goal, valence and commitment, however, were significantly related to performance with commitment showing the strongest relationship. This is the first goal-setting study to obtain a significant effect for commitment, a finding which may be the result of goals (including the goal of winning) being self-set rather than assigned.

The Relationship of Outcome Valence, Personal Goal and Commitment to Performance When No Goals Are Assigned

Previous attempts to replicate Atkinson's (1958) finding of an inverted-U relationship between probability of success and performance have met with mixed success. Arvey (1972) and Motowidlo, Loehr, and Dunnette (1978) found some support for it, while Mento, Cartledge and Locke (1980) and others failed to do so. Mento et al. (1980) identified some methodological differences that could have accounted for the different results including differences in the amount of feedback provided.

This study was designed to determine whether giving various amounts of feedback and feedforward to subjects, based on their performance on a pre-experimental work sample, would affect the shape of the probability-performance relationship. In Atkinson's study subjects apparently knew nothing about their ability relative to that of other subjects, nor what performance level would be needed to win. Thus it was predicted that the relationship would be most likely to be curvelinear when subjects were given minimal feedback since this was the condition under which Atkinson obtained his findings. It was predicted that the probability-performance relationship would be linear and negative (with low probabilities leading to higher performance) when subjects were told how well they had to perform in order to be in the winning group, since this more closely resembles the typical goal-setting study.

However, these predictions were conditional; they depended upon what goals actually were set by subjects in the various conditions. Previous research has demonstrated that goal difficulty is linearly and positively related to performance (Locke, Shaw, Saari, & Latham, 1981). Since goals were not assigned in the present study, it was not self-evident what goals subjects would set in response to each probability and feedback condition.

In addition, it seemed intuitively obvious that subjects' commitment to being in the winning group would affect their performance, despite the fact that commitment questions had not been related to performance in previous goal-setting research (Locke et al., 1981). However, previous goal-setting research typically had used assigned goals so that the demand characteristics of the experimental situation virtually guaranteed a high level of goal acceptance. Conceivably, commitment would be more highly related to performance in situations where goals were self-set rather than assigned.

Finally, it was predicted that commitment would be related in some way to the value to the individual of winning as well as to the subjective probability of winning, in line with the major tenets of expectancy theory (Vroom, 1964).

METHOD

Subjects. The subjects were 212 undergraduates from an introductory psychology class. They were given extra course credit in return for participation in the study.

Task. The task was perceptual speed (Moran and Mefferd, 1959). The subject was to indicate the number of digits in a row of digits that were the same as the first digit in the row.

Design. The design was a 3x3 factorial with three levels of probability of success, i.e., winning (.10, .50 and .90) and three levels of feedback/feedforward. To win, which involved a $2 prize, a subject had to be in the designated top portion of his or her group (e.g., top 10%, top 50% or top 90%).

With respect to feedback/feedforward, the No Feedback/No Feedforward subjects scored their own practice trial but were given no information regarding their performance in relation to others on the practice trial (a work sample) and no knowledge of what speed was required in order to win. Subjects in the Norms group scored their own practice trial and then looked up their percentile score on a norm chart (based on norms obtained from previous experiments using this task). Subjects in the Norms plus Feedforward group were given the norm chart information plus a chart which converted their percentile standing to a "change from practice trial speed needed to win" score. This was based on the subject's ability and the probability of success group the subject was in. Thus subjects in the .90 group who had high ability would be told that they could decrease their practice trial speed, for example, by 40% and still win, while subjects with low ability in the .10 group would be told that they had to increase their speed, for example, by 100% in order to win.Subjects were informed that the speed needed to win

score was determined by assuming that all subjects would work at the same speed as they had on the practice trial.

Procedure. The subjects were run in groups, each group constituting a condition in the nine cell design. However, more than nine groups were run since the groups varied in size from eight to 22.

Subjects began with two 2-minute work sample trials to familiarize them with the task, followed by a third 2-minute practice trial which served as a measure of task ability. After the third practice trial, the condition the subjects in a given group were in was described to them. For example, the .50 group with Norms were given the following instructions:

> "In this group the top 50% in number of items correct will be paid $2.00. This means that in this group, since there are ___ people, the top ___ will get the money. We will do the scoring ourselves, and mail you the money within 30 days. Remember scores are based on total number correct. To show you where you probably stand in this group, I will pass out a table showing you the scores of several hundred people who have previously worked on this task. Find your score on Practice Trial 3 in the left-hand column and circle it. This will show you your relative standing compared to these other students. Assuming this group is a representative sample, the table will

show you how you probably stand in relation to this group."

In the Norms and Norms plus Feedforward conditions the subjects were "walked through" the charts to insure that they understood what the various numbers meant.

After any questions were answered, subjects filled out an 8-item questionnaire. These items asked the subjects to indicate: (1) their chances of winning if they worked at the same speed as on the practice trial (a 5-point scale in categories of 20% each); (2) their perceived ability on tasks like this (5-point scale from "Much above average" to "Much below average"); (3) their chances of winning if they tried their "very hardest" the whole time (same scale as #1); (4) perceived speed needed to win in relation to practice trial speed (8 point scale: 11% or more slower; 10% slower; same rate; 10% faster; 30% faster; 50% faster; 70% faster; 90% or more faster)[2]; (5) desirability of winning, considering all positive and negative factors (5-point scale from "It is highly desirable to win" to "It is highly undesirable to win"); (6) overall value of winning (5-point scale from "Very valuable" to "Very harmful"); (7) commitment to winning; 5-point scale from "I will definitely try my hardest to win" to "I will definitely not try to win"; and (8) personal goal (same scale as #4).

Subjects then worked for 20 minutes on the task and indicated the point they had reached in the task booklet every two minutes.

At the end of the 20-minute work period, subjects were asked to go back to the questionnaire and indicate whether they had changed their goals, expectancies etc. during the course of the experiment and, if so, to indicate how they had changed and when. There was a space to indicate this information after each of the eight questions.

Criterion. The criterion was total number correct. (The results for total number attempted were basically the same and are not reported).

Data Analysis. Due to unequal cell sizes, the experimental design approach to multiple regression analysis was used to test the study's hypotheses, as explic ted by Kerlinger and Pedhauzer (1973). Ability (score on third practice trial) was treated as the control variable in testing for the various effects.

Results

Reliability. Cronbach's alpha coefficient between first half (first 10 minutes) and second half performance was .94 for all subjects combined.

Main Effects. As would be expected, the best predictor of performance was ability ($r = .78$; $p < .001$). There were no main

effects for probability of success or for feedback condition and no interaction effects (all F's < 1.31). To check for the possibility of interaction effects which would not show up in the overall interaction test, regressions were run on each row and column of the 3x3 matrix. Only one small effect was found: performance was lower for the .10 subjects in the Norms plus Feedforward group than for the .50 and .90 subjects ($F=3.23$, $p < .05$, d.f. 2,71). This result may have been an artifact, however. Since the .10 group had much higher initial ability than subjects in the other groups, and since improvement was harder for higher ability subjects, a low improvement score combined with a high ability score could lead to a sharp drop in the corrected mean. Furthermore, when the probability of success effect was broken down into linear and quadratric components for this group, neither trend was significant.

Subjective Probability, Valence, Personal Goal and Commitment Effects. The two subjective probability measures (questionnaire items 1 and 3), which were correlated .82, were combined to form an overall subjective probability score. Similarly, the two valence items (nos. 5 and 6), which were correlated .60, were also summed to form an overall valence score.

Subjective probability of success and actual probability of winning (based on experimental condition) correlated only .18 ($p < .01$). This low relationship is not surprising since

there was a wide range of abilities among the subjects within each probability of winning condition, and since winning was based on absolute performance rather than on performance in relation to ability. Subjective probability correlated .41 ($p < .01$) with actual ability and .57 ($p < .01$) with perceived ability. If subjects in the No Feedback condition are omitted, the latter correlations are even higher.

When the effects of valence and subjective probability and their interaction were tested, the valence effect on performance was significant ($F=9.86$, $p < .01$, d.f., 1,207). The interaction effect was also significant, but it disappeared when personal goal was controlled. The valence effect, however, remained significant.

The correlations among the measures of subjective probability, valence, personal goal, commitment and performance are shown in Table 1. The correlations with performance are partial correlations (i.e., with ability partialed out). Valence, personal goal and commitment show significant correlations with performance. The correlation for commitment remains significant even when personal goal and valence (in addition to ability and subjective probability) are controlled ($F=2.49$, $p < .05$, d.f. 5,206). However, neither personal goal nor valence remains significant when commitment is controlled. Personal goal is significant when valence is controlled and valence (as noted above) remains significant when personal goal is controlled.

Insert Table 1

The major factor determining commitment, as implied by Table 1, was valence ($F=54.7$, $p < .001$, d.f., 1,208, when entered with subjective probability). Personal goal was related to both valence ($F=15.2$, $p < .001$, d.f., 1,208) and subjective probability ($F=18.0$, $p < .001$, d.f., 1,208).

Effects of Attitude Changes on Relationships

After completing the above analyses, the questionnaires were re-scored based on the changes the subjects claimed had taken place during the work period. "Corrected" answers were put in place of the original answers as applicable. The result was to strengthen the original conclusions. The (partial) correlation of valence with performance increased from .21 to .24; the corresponding correlation for personal goal decreased from .18 to .17; and the correlation of commitment with performance increased from .21 to .28.

While most subjects who changed indicated that they had changed their attitudes about half way through the work period, breaking the performance measures down into a first half (first 10 minutes) and second half scores did not improve these correlations. In fact, it reduced them, probably due to the lower reliability of the 10-minute scores.

Discussion

The failure to replicate Atkinson's inverse-U relation between probability of success and performance demonstrates once again the extreme fragility of this widely cited finding. Mento et al. (1980) identified seven methodological factors, including artifacts, that could have influenced the original findings. All were taken account of in the present study. The first, ability, was measured in this study via a work sample and used as a control variable. The second, the type of probability of success measure, was taken into account by including a second item (#3) asking subjects to indicate their probability of winning assuming they tried their hardest. A separate analysis showed that this item did not lead to results any different from the usual type of item (#1) which failed to specify trying to win. A third factor, feedback, was provided in varying degrees in this study, although it was given before rather than during performance. It made no difference in the results. (The latter finding does not contradict the conclusion of Locke et al., 1981, which asserted that feedback was necessary for goal setting to work, since in this study feedback was not provided during performance. Presumably subjects could keep track of their pace of work on their own, though probably not as accurately as if they had actually calculated their rate of progress during performance). Fourth, performance was measured objectively and ability was

partialed out as recommended by Mento et al. (1980).

The remaining three factors noted by Mento et al. (1980) pertained to: the need for specific goal measures, the need for measures of goal commitment, and the need for measures of valence. All three were included here and these were precisely the measures which were related to performance.

The most unique finding of this study is the significant effect of commitment on performance, an effect which ultimately overrode the effects of personal goal and valence. This is the first time a goal-setting study has found a significant relationship between commitment and performance (although in this case the commitment measure was not of commitment to the quantitative personal goal but to the goal of being in the winning group). A key reason for this successful result may have been that goals were not assigned in this study, including the goal to win. When subjects feel free to choose their own goals, a wider range of degrees of commitment may be found than in the case where specific goals are assigned to all subjects. Future studies might magnify this effect by offering different amounts of money in return for winning. The findings of goal setting studies suggest that money has an effect on commitment separate from the effects of goal level (Locke et al., 1981).

It may be hypothesized that the possible confounding or uncontrolled factors noted by Mento et al. (1980) have an

important influence on the results of studies of this type, e.g. where probability of success is manipulated. We obtained independent verification of how subjective probability can be spuriously related to performance. In this study subjective probability correlated .31 ($p < .001$) with raw performance. However, both measures were significantly correlated with ability. When ability was partialed out, the subjective probability-performance correlation dropped to -.01(ns, see Table 1). It is worth noting as well that subjective probability only predicted raw performance significantly in the Norms and Norms plus Feedforward groups. (r's=.74 and .44, p's < .001, respectively). Ability and subjective probability were correlated only .07 (ns) in the No Feedback/No Feedforward condition. Subjects given no feedback regarding their relative ability on the task could not estimate their probability of success on that basis, so presumably made their ratings on some other (unknown) basis.

The finding that subjective probability and valence predicted goal choice expands on the results obtained previously by Mento et al. (1980) who observed that these measures predicted goal acceptance in two studies in which goals were assigned.

The finding that personal goals were significantly related to performance replicates a long line of studies which have obtained this result (Locke et al., 1981), although most

used assigned rather than self-set goals. The size of the goal effect would be expected to be lower with self-set than with assigned goals, because most subjects set goals of moderate rather than high or low difficulty, thus restricting the range of goal levels.

Footnotes

1. This research was supported by Contract No. N00014-79-C-0680 from the Office of Naval Research (Organizational Effectiveness Research Program). The authors would like to thank Elizabeth Zubritsky for performing some of the data analyses. Some of these results were presented at the Academy of Management meetings, San Diego, 1981.

2. The reason for the assymetrical scale was that pilot work had shown that almost no subjects in studies like this intend to go slower than their previous (practice trial) performance.

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Table 1

Attitudinal Predictors of Performance

	Valence	Pers.Goal	Commitment	Performance (Residual Gain)
Subjective Probability (sum of 2 items)	.16*	-.24**	.11	-.01
Valence of Winning (sum of 2 items)		.21**	.46**	.21**
Personal Goal			.30**	.18**
Commitment to Winning				.21**

*p < .05 (based on N=212)

**p < .01

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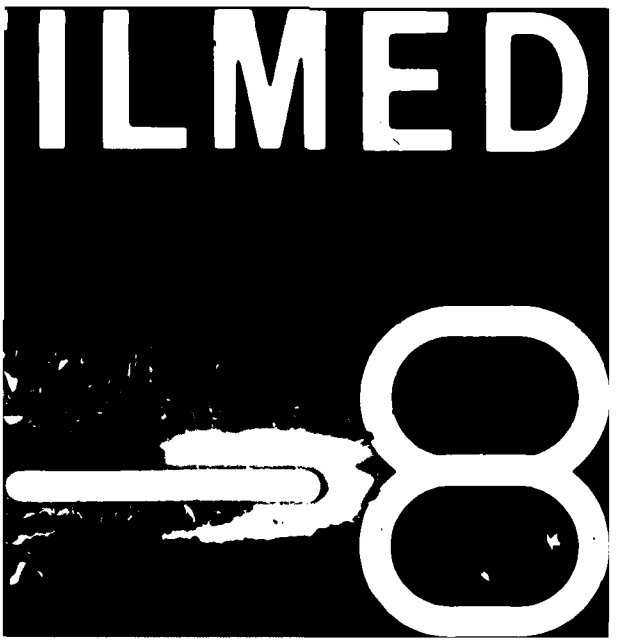
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